



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

09/557,696

04/25/2000

Xiangxin Bi

N19.12-0035

8550

24113

7590

11/18/2003

PATTERSON, THUENTE, SKAAR & CHRISTENSEN, P.A.
4800 IDS CENTER
80 SOUTH 8TH STREET
MINNEAPOLIS, MN 55402-2100

EXAMINER

GORDON, BRIAN R

ART UNIT

PAPER NUMBER

1743

28

DATE MAILED: 11/18/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/557,696

Applicant(s)

BI ET AL.

Examiner

Brian R. Gordon

Art Unit

1743

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 August 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 and 38-68 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 64-68 is/are allowed.
- 6) ☒ Claim(s) 1-7, 10, 12-14, 38-44, 53, 54, 57-61 and 63 is/are rejected.
- 7) ☒ Claim(s) 8, 9, 11, 45-52, 55 and 62 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|----------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed August 22, 2003 have been fully considered.
2. Applicant's arguments have been fully considered but they are not persuasive.

With respect to the amendment to claim 1, applicant has attempted to clarify the phrase "operably distinct" by changing it to "along a flow path independent". It appears as if applicant is attempting to add a structure limitation in which the first collector is located on a first transport device path and the second collector is located on a second transport device path. The claim does not clearly establish such a limitation for it does not recite that the first collector is located on a path in no capacity.

The claim does not state that the first collector is located on a transportation first structure comprising a first transport path and the second collector is located on a second structure comprising a second transport path. The claim broadly claims, "using a second collector along a flow path independent from the first collector". This phrase does not require any particular structure, as it appears as if applicant is attempting to establish. The claim on requires that the second collector be located along a flow path independent of the first collector. It is not recited that the first nor second collector moves in a flow path. As such any two collectors moving in different paths whether or not the collectors are moved manually or by any particular structure is not considered as being within the scope of the claim. Further move the Marsh et al. meets the limitation of the claim for the bag collector 19 is in an independent flow path than that of which collects the product.

With respect to claim 58, applicant's arguments on page 13 state that Marsh patent does not teach nor suggest a reactor with different reactant sources. This argument is not commensurate in scope with that of the claim. Claim 58, does not require different reactant sources. The claim requires "a delivery system comprising a first quantity of fluid reactants and a second quantity of fluid reactants being different from the first quantity of fluid reactants". There is no recitation that the fluid reactants come from different sources. The fluids may be placed sequentially in the same reservoir supply (source) flow through the same system to a reactor for mixing.

As to the sequentially reacting of reactants and collecting the products, the examiner would like to direct applicants attention to Example 1 and Example 3 disclosed by Marsh in column 8 – column 9. The two examples employ **different reactants to produce different products** and as recited in column 8 lines 30-32, "The suspension (gel), containing 10.0 wt % solids after screening, was spray dried in an indirect fired, **closed cycle spray (seal reaction chamber) dryer.**" Example 3, column 9, lines 6-10 further state, "The suspension, containing 7.5 wt % solids after screening, was **spray dried in the same equipment used for Example 1.** The operating **conditions were also the same, except the outlet temperature was 80 degrees C and the feed rate was 194 cc/min.**"

As seen in the Marsh patent a single "Cyclone Collector 14" is included in the system. All of the product produced in the process is past through or collected in the container 14. The process may be used to produce different powders. As such during a batch process a first powder may be reacted and collected in the collector 14 and

Art Unit: 1743

eventually collected in a second container. Afterwards another different powder may also be produced and collected in the same collector 14 and eventually collected in a different container than that of the second container.

Although applicant states that claim 38 has been amended for clarity, the examiner asserts the claim is much broader than the remaining independent claims 1, 58 and 64. Claim 38 does not require the particular apparatus as required by the other claims to perform the method. Claim 38 may be considered an entirely different invention for the device may be conducted manually by producing first product in a closed container and transferring that product to a container and then creating a second product in the same closed container and transferring the second product to the same container with the first product. A cook may desire to create a dish by cooking a first group ingredients in a closed pressure cooker and when done pouring the contents in a container, and then cooking a second set of ingredients in the same cooker, and finally combining the second ingredients in one container with the first ingredients.

As to applicants arguments as addressed to claims 38, 53, 54, and 57 being directed to "mixing of independent reaction products", the specification nor claims defines what is meant by mixing independent reaction products. As such the arguments are not commensurate in scope with that of the claims. The claims recite different reactants. The examiner asserts that while the Marsh patent is directed to admixtures the admixtures comprise materially different reactants.

Applicant further states that the Marsh patent does not teach mixing a plurality of admixtures. The instant claims of the invention are not related to mixing plurality of

Art Unit: 1743

admixtures. The claims are directed to different reactants (which are within the admixtures of Marsh). As recited above the Marsh process could be possibly a batch process however, it does not preclude that the different powders may be mixed together in the cyclone collector or any other secondary product collection container.

As to applicant's arguments to Marsh describing a single feed or admixture forming a single reaction product the examiner asserts Marsh produces multiple products for as recited through out the specification gas and water are also produced (column 3, lines 65-68 can column 7, lines 41-44)

As to applicant's arguments that state there is no motivation to combine the Marsh and Acosta references, the examiner respectfully disagrees for both references are related to supplying reactants to a container in which a reaction is performed. As recited above the Marsh device includes different supply lines 2-4 that are combined in a single line 5, However Acosta discloses a supply system in which multiple supply lines are used. The examiner asserts that there are numerous known advantages for using such a system. For example, the multiple lines allow for a greater quantity of reactants to be supplied to chamber and multiple nozzles could also produce a finer spray resulting in an ease of drying.

For reasons given above the 103 rejections of the claims 1-7, 10, 12-14, 38-44, 53-54, 57-61, and 63 are hereby maintained.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As to claim 1, applicant has attempted to clarify the phrase "operably distinct" by changing it to "along a flow path independent". It appears as if applicant is attempting to add a structure limitation in which the first collector is located on a first transport device path and the second collector is located on a second transport device path. The claim does not clearly establish such a limitation for it does not recite that the first collector is located on a path in no capacity.

Applicant has stated on page 14 of the arguments that the amendment is to establish that the collectors are arranged in parallel paths as described on page 10 of the specification. If this is applicant intentions then why not amend the claim to reflect that the collectors are located in parallel paths?

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

Art Unit: 1743

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 38, 53-54, 57-60, and 63 are rejected under 35 U.S.C. 103(a) as being obvious over Marsh et al. US 4,649,037.

Marsh et al. discloses a method in which inorganic metal oxides having high surface area and pore volume are prepared by spray drying. The process of producing metal oxide powders which comprises: (a) admixing reactants comprising an organic solvent, at least one hydrolyzable metal compound, and a sufficient amount of water to at least partially hydrolyze said hydrolyzable metal compound; (b) supplying the admixture as a plurality of droplets to a heating zone (radiating heat source) operated under conditions of temperature and pressure below the critical temperature and pressure of the reactants but sufficient to produce a product comprising metal oxide powders, and a gas comprising organic solvent vapors; (c) separating said product from

said gas; and, (d) collecting the product. Different reactants may be added to the stream admixture (solution or gel) in order to produce a product of different properties.

FIG. 1 schematically illustrates an indirect heated, closed cycle spray drying apparatus (operated by Bowen Engineering Inc., Somerville, N.J.) of the type preferably employed in producing our novel metal oxide powders. As illustrated, the gel (one form of the admixture) is supplied to a supply line 1. Compressed gas is applied via a line 2 to aid in feeding the admixture to the spray dryer. Optionally, cooling water is fed via a line 3 to cool the supply line 5 used to deliver the admixture to spray drying chamber 9, thus preventing premature vaporization of the admixture in the nozzle. Nitrogen (or some other "non-oxygen containing" gas; i.e., a gas having a maximum O₂ content less than or equal to about 0.1%, and preferably less than the lower explosion limit for the solvent) is supplied via a line 4 to the spray drying chamber 9 to function as the drying medium. In operation, the nitrogen is initially cycled through the system and thereafter continuously recycled with make-up nitrogen being supplied through the nozzle 4 as needed. The nitrogen is heated to the appropriate drying temperature in a preheater 7 (e.g., a steam heater) and is supplied (cocurrently) to the spray drying chamber 9 through a line 7 and circumferential supply opening 8. The gel is fed through the line 1 (via the compressed gas supplied through line 2) to the supply line 5 which feeds the gel through a nozzle 10. Within the spray drying chamber 9 is a rotating wheel or disk 11 which functions to atomize the gel. In spray drying chamber 9, a product comprising metal oxide powders, and vapors comprising water and organic solvent are produced from the gel. The product and vapors are pumped through outlet 12 and supply line 13

Art Unit: 1743

to a separator 14 (e.g., a cyclone separator) wherein the product is separated from the vapor. The product is removed from the separator via outlet 15. The vapor, containing reaction product fines is drawn off through take-off vent 16 and supplied by a line 17 through a nozzle 18 to a baghouse 19. In the baghouse 19, the product fines are collected and removed via outlet 20.

Marsh et al. does not specifically recite that the device comprises a plurality of collectors; however, it would have been obvious to one of the ordinary skill in the art to recognize that in varying the reactants of the system different collectors or containers would be necessary to collect the different products from outlet 20 of the system in order to avoid mixing the products or cross contamination.

6. Claims 1-7, 10, 12-14, 39-44, and 61 are rejected under 35 U.S.C. 103(a) as being unpatentable over Marsh et al. as applied to claims 38, 53-54, and 56-57 above, and further in view of Acosta et al. US 6,254,826.

Marsh et al. does not disclose that the device used to perform the method comprises one or more movable nozzles that may comprise a plurality of reaction inlets.

Acosta teaches a multiple conduit (inlets and nozzles) substance transfer device, and substance transfer device positioning structure.

A flexible tube 428, preferably formed of a plastic material, or other suitable conduit structure, extends from the central conduit 422 of the manifold 420. Tube 428 may be connected to a containers (not shown) in which fluids can be stored.

A flexible tube 448, preferably formed of a plastic material, or other suitable conduit structure, extends from the central conduit 442 of the dispenser manifold 440

Art Unit: 1743

and may be connected to a container (not shown) which stores substances to be dispensed into receptacles. Substances are preferably supplied from a remote storage container to the substance transfer device 400 via tube 448 by a hand pump (not shown) calibrated to withdraw a predetermined amount of substance from the storage container for dispensing the predetermined amount into the receptacles through the dispenser manifold 440.

It would have been obvious to one of ordinary skill in the art to modify the device of Marsh by incorporating the transfer device of Acosta in order to supply the multiple reactants or substances to the drying chamber (reaction chamber) of Marsh et al. in order to avoid the cross-contamination that may occur when using a common supply device for different reactants.

Allowable Subject Matter

7. Claims 64-67 are allowed.
8. Claims 8-9, 11, 45-52, 55, and 62 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
9. The following is a statement of reasons for the indication of allowable subject matter:

Marsh et al. does not disclose a method for obtaining a plurality of quantities to compositions wherein the method comprises a radiation path defined by a radiation source (infrared laser) and directing optical elements wherein the reacting of the fluid reactants involves interacting radiation source with the reactants. The apparatus

comprises pumps and valves that allow for the first collector to be exposed to the forces of the pump while the first particles are collected and the second collector is exposed to the forces of the pump while the second particles are collected. Marsh also fails to teach or suggest a method of obtaining a plurality of quantities of compositions in which the method comprises performing reactions under the condition in which the reaction chamber remains isolated from the ambient environment continuously from the step of reacting a first quantity of reactants through the step of reacting a second quantity of reactants.

Conclusion

3. This is a request for continued examination of applicant's earlier Application No. 09/557,696. All claims are drawn to the same invention claimed in the earlier application and could have been finally rejected on the grounds and art of record in the next Office action if they had been entered in the earlier application. Accordingly, **THIS ACTION IS MADE FINAL** even though it is a first action in this case. See MPEP § 706.07(b). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

Art Unit: 1743


the advisory action. In no, however, event will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian R. Gordon whose telephone number is (703) 305-0399. The examiner can normally be reached on M-F, with 2nd and 4th F off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill Warden can be reached on 703-308-4037. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

brg
November 14, 2003


Jill Warden
Supervisory Patent Examiner
Technology Center 1700